

ALL REINFORCING STEFL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI DETAILING MANUAL, LATEST EDITION, (ACI SP-66 & ACI 315).

 ALL #4 AND LARGER REINFORCING BARS TO BE SHOP FABRICATED, BUNDLED AND TAGGED WITH DRAWING NUMBER AND PIECE MARK NUMBER, UNLESS OTHER-WISE NOTED

4. ALL CONCRETE MATERIALS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI BUILDING CODES (ACI 318 AND ACI 301) AND THE PROJECT CONCRETE

A. CONCRETE AGGREGATE - ASTM C33

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B. REINFORCING BARS - ASTM 615 GRADE 60
C. AIR ENTRAINMENT - ASTM C260
D. CEMENT - PORTLAND CEMENT ASTM C150.

ADMIXTURES - ASTM C494, C1017 (WATER REDUCING, RETARDING OR ACCFIERATING ADMIXTURES ARE NOT ALLOWED WITHOUT WRITTEN

AUTHORIZATION FROM THE ENGINEER)
F. WELDED WIRE FABRIC - ASTM A82, A185, A496 & A497

5 ALL CONCRETE SHALL BE AS FOLLOWS: (UNLESS OTHERWISE NOTED) A MINIMUM COMPRESSIVE STRENGTH f'c. AT 28 DAYS - 4000 PSI.

B. MAXIMUM SLUMP AT POINT OF DISCHARGE - SEE SPEC. C. MAXIMUM AGGREGATE SIZE - 1 INCH. D. CEMENT TYPE V

MINIMUM CONCRETE PROTECTION REQUIRED FOR REINFORCEMENT PER ACI 318, CHAPTER 7, AS FOLLOWS:

 A. DEPOSITED DIRECTLY AGAINST UNDISTURBED GROUND - 3" CLEAR

A. DEPOSIED DIRECTLY AGAINST UNDISTURBLE ORGONIO - 3 CLEAR
B EXPOSED TO EARTH (BACKFILL) OR WEATHER - \$6 THRU \$18 BARS2" CLEAR; \$5 & SMALLER - 1 1/2" CLEAR
C. NOT EXPOSED TO WEATHER OR GROUND - 1 1/2" CLEAR FOR COLUMNS,
BEAMS AND GIRDERS; 3/4" CLEAR FOR FLOOR SLABS AND WALLS.

UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DESIGN DRAWINGS, LAP SPLICES TO BE PER THE FOLLOWING TABLE: (BASED ON ACI 318, CHAPTER 12) (DIMENSIONS ARE IN INCHES):

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BAR SIZE	CLASS "A" SPLICE TENSION BARS		CLASS "B" SPLICE TENSION BARS	
	TOP BAR	OTHERS	TOP BAR	OTHERS
#4 #5 #6 #7 #8 #9 #10 #11	25 31 37 54 62 69 77 85	19 24 28 42 47 53 59 65	32 40 48 70 80 90 100	25 31 37 54 62 69 77 85

TABLE NOTES.

PROJECT SPECIFICATIONS:

SP-01239-C-003

SP-01239-C-004

SP-01239-C-005

SP-01239-C-006

SP-01239-C-007

SP-01239-C-008

SP-01239-C-009

SP-01239-C-010

SP-01239-C-011

SP-01239-C-012

SP-01239-C-013

SP-01239-C-015

CLASS B SPLICES SHALL BE USED EXCEPT THAT:

A. CLASS A LAP SPLICES ARE ALLOWED WHEN ONE-HALF OR LESS OF THE TOTAL REINFORCEMENT IS SPLICED WITHIN THE REQUIRED LAP LENGTH B TOP BAR - WHERE MORE THAN 12" OF CONCRETE IS CAST BELOW THE BAR.

SPECIFICATION FOR CAST-IN-PLACE CONCRETE

SPECIFICATION FOR METAL DOORS AND FRAMES

SPECIFICATION FOR ARCHITECTURAL PAINTING

SPECIFICATION FOR CAULKING AND SEALING

SPECIFICATION FOR SITE PREPARATION

SPECIFICATION FOR BONDING AND GROUTING

SPECIFICATION FOR ASPHALT PAVING

SPECIFICATION FOR EXCAVATION AND BACKFILL FOR STRUCTURES

SPECIFICATION FOR PAINTING OF STRUCTURAL AND MISCELLANEOUS STEEL

SPECIFICATION FOR PRECAST PRESTRESSED DOUBLE TEE CONCRETE BUILDING SYSTEM

SPECIFICATION FOR INSTALLATION OF REINFORCED CONCRETE PRESSURE PIPE

SPECIFICATION FOR STRUCTURAL AND MISCELLANEOUS STEEL

- CONSTRUCTION OR CONTROL JOINTS, OTHER THAN THOSE SPECIFIED ON THE DRAWINGS, SHALL OCCUR ONLY WHEN APPROVED BY THE ENGINEER.
- UNLESS OTHERWISE NOTED, INTERIOR SLABS SHALL HAVE A STEEL TROWELED FINISH. EXTERIOR SLABS SHALL HAVE A LIGHT BROOMED FINISH.
- PEDESTALS AND WALLS SHALL HAVE HONEYCOMBS REPAIRED AND ALL EXPOSED SURFACES SHALL HAVE FORM MARKS REMOVED.
- ALL EXPOSED CORNERS ABOVE GRADE SHALL HAVE A 3/4" BY 45 DEGREE CHAMFER UNLESS OTHERWISE NOTED.
- ALL CONCRETE WORK PERFORMED DURING HOT WEATHER SHALL BE IN ACCORDANCE
- ALL CONCRETE WORK PERFORMED BELOW 40 DEGREES FAHRENHEIT SHALL BE IN ACCORDANCE WITH ACI STANDARD 306.
- ALL CARBON STEEL ANCHOR BOLTS SHALL CONFORM TO ASTM A-36. ANCHOUSING AN EPOXY ADHESIVE SHALL BE A TWO PART SYSTEM APPROVED BY ENGINEER. EMBED HOLE SIZE, DEPTH AND INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS EMBEDDED STEEL ITEMS SHALL CONFORM TO ASTM A-36
- MASS CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 207
 PROCEDURES FOR PLACEMENT SHALL BE SUBMITTED TO THE ENGINEER FOR
- IF UNEXPECTED OR UNUSUAL SITE CONDITIONS ARE FOUND, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY
- ALL TIES, HOOPS, STIRRUPS AND CROSS TIES SHALL HAVE 135° SEISMIC HOOKS EXTENDING SIX BAR DIAMETERS (NOT LESS THAN 3") AND ENGAGING
 THE LONGITUDINAL REINFORCEMENT. THE 90" HOOKS OF CONSECUTIVE CROSS TIES ENGAGING THE SAME LONGITUDINAL BAR SHALL BE ALTERNATED END FOR
- 18. GROUNDING GRIDS AND ALL UNDERGROUND ELECTRICAL CONDUIT, PLUMBING, PIPING AND UTILITIES SHALL BE IN PLACE AND APPROVED BY OWNER'S REPRESENTATIVE AND APPROPRIATE CRAFTS PRIOR TO PLACING ANY CONCRETE
- CURING AND PROTECTION OF FRESHLY PLACED CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301, CHAPTER 12. (CURING COMPOUND SHALL NOT BE USED) SURFACE SHALL BE MOIST CURED FOR A MINIMUM OF 7 DAYS.
- FOUNDATIONS ARE TO REST ON FIRM, NATURAL UNDISTURBED SOIL OR STRUCTURAL FILL EXTENDING TO UNDISTURBED SOIL. ALL SOFT SPOTS ARE TO BE REMOVED AND REPLACED WITH STRUCTURAL FILL CONSISTING OF CLEAN SELECT MATERIAL FILL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8 INCHES, WITH MOISTURE CONTENT AT ±2% OF OPTIMUM, AND COMPACTED TO 95% OF ASTM D-1557 (MODIFIED PROCTOR). ALL FOUNDATION SOILS PREPARATION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION FOR THE PROJECT.
- WATERSTOP, WHERE SHOWN ON THE DRAWINGS, SHALL BE "SYNKO-FLEX" ADHESIVE WATERSTOP UNLESS OTHERWISE NOTED. INSTALL PER MANUFACTURE'S RECOMMENDATIONS
- 22. FOR GEOTECHNICAL REPORT SEE: HELPER COOLING TOWER SITE GEOTECHNICAL INVESTIGATION DATED FEBRUARY 2002, BY R B & G ENGINEERING OF PROVO, UTAH.

- DESIGN, FABRICATION, MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC "MANUAL OF STEEL CONSTRUCTION. ALLOWABLE STRESS DESIGN. THE DESIGN DRAWINGS & THE PROJECT STRUCTURAL AND MISCELLANEOUS STEEL SPECIFICATIONS
- 2. ALL WIDE FLANGE, W AND WT. STRUCTURAL SHAPES SHALL CONFORM TO ASTM A992. (ASTM A572. GRADE 50 WITH SPECIAL REQUIREMENTS PER AISC TECHNICAL BULLETIN \$3). ALL OTHER STRUCTURAL SHAPES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36.
- 3. ANY SUBSTITUTION OF MATERIALS, SIZES OR SHAPES SHALL NOT BE MADE WITHOUT PRIOR APPROVAL OF ENGINEER.
- 4 STRUCTURES ARE DESIGNED AS STABLE UNITS AFTER ALL COMPONENT PARTS ARE IN PLACE. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING AND BRACING TO INSURE STABILITY DURING ERECTION.
- 5. STANDARD FRAMED CONNECTIONS SHALL BE PROVIDED FOR CONNECTING BEAM TO BEAM AND BEAM TO COLUMN, UNLESS OTHERWISE SHOWN OR NOTED. CONNECTIONS SHALL HAVE THE MAXIMUM ALLOWABLE ANOLE LENGTH, OR EQUIVALENT WELDS, FOR EACH MEMBER SPECIFIED, AS SHOWN IN TABLES IIA THROUGH IIC AND IN COMPLIANCE WITH THE TABLES IA THROUGH IG OF PART 4 OF THE AISC MANUAL OF STEEL CONSTRUCTION. WHERE POSITION OF A MEMBER PROHIBITS THE USE OF A STANDARD WEB CONNECTION, AN EQUIVALENT CONNECTION SHALL BE MADE, AS APPROVED BY THE ENGINEER. BOLTED SHOP CONNECTIONS SHALL BE COMPLETELY ASSEMBLED IN THE SHOP
- 6. BOLTED CONNECTIONS SHALL BE BEARING TYPE UNLESS SLIP CRITICAL TYPE ARE SPECIFIED OR REQUIRED. THREADS SHALL BE INCLUDED IN THE SHEAR PLANE UNLESS OTHERWISE NOTED. BOLTS SHALL BE 3/4 INCH DIAMETER HIGH STRENGTH BOLTS CONFORMING TO ASTM A325, EXCEPT FOR STATRS, PURLINS AND GITTS, THESE MAY BE 3/4 INCH DIAMETER MACHINE BOLTS (A397). HOLES TO BE 13/16 INCH DIAMETER UNLESS OTHERWISE NOTED. LENGTH OF BOLTS SHALL BE SHOWN ON SHOP DRAWINGS. A MINIMUM OF (2) BOLTS ARE REQUIRED TO BE USED IN ANY CONNECTION UNLESS NOTED OTHERWISE. "SHORT SLOTTED HOLES" ARE NOT PERMITTED UNLESS SPECIFICALLY AUTHORIZED, IN WRITING. BY THE ENGINEER.
- 7 WELDED CONNECTIONS SHALL BE MADE WITH E-70XX ELECTRODES. ALL WELDING SHALL BE IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STANDARDS (AWS D1.1) AS MODIFIED BY AISC SPECIFICATIONS.
- 8. FIELD WELDING IS PERMITTED ONLY WHERE SHOWN ON THE DESIGN DRAWINGS OR APPROVED BY THE ENGINEER AND SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF AN INDEPENDENT TESTING LABORATORY AT THE DISCRETION OF THE STRUCTURAL ENGINEER.
- PENETRATION OR FUSION WELDS SHOWN ON DRAWINGS MAY BE TESTED AS REQUIRED BY THE CONSTRUCTION MANAGER BY X-RAY OR ULTRASONIC ANALYSIS AS PER THE AMERICAN WELDING SOCIETY STANDARDS.
- 10. WHEN USED, ALL DOUBLE ANGLE BRACING SHALL HAVE SPACERS IN ACCORDANCE WITH AISC SPECIFICATION, CHAPTERS D AND E. CONNECT SINGLE ANGLE BRACING MEMBERS AT THE INTERSECTION WITH (1) BOLT. BRACING CONNECTIONS SHALL BE DESIGNED FOR THE AXIAL LOADS SHOWN ON THE DRAWINGS. WHERE LOADS ARE NOT SHOWN, 100% OF THE ALLOWABLE TENSILE CAPACITY OF THE MEMBER SHALL BE USED. ALL BRACING CONNECTION PLATES AT COLUMNS TO BE CONNECTED TO BEAMS AND COLUMN (TYPICAL).

11. ALL CROSS BRÁCING SHALL BE FABRICATED WITH THE FOLLOWING DRAW:

LENGTH OF CROSS BRACE REQUIRED DRAW
0'-10' NONE
10'-20' (-)1/16"
20'-35' (-)1/8"

OVER 35

- ALL HORIZONTAL BRACING WORK POINTS ARE TO THE NOMINAL MID-DEPTH OF THE SHALLOWEST CONNECTING BEAMS (UNLESS OTHERWISE NOTED).
- 13 ALL VERTICAL BRACING WORK POINTS ARE TO THE NOMINAL CENTER POINTS OF CONNECTING BEAMS (UNLESS OTHERWISE NOTED).
- 14. ALL GUSSET PLATES TO BE 3/8 INCH MINIMUM THICKNESS (UNLESS OTHERWISE NOTED).

(-)3/16

- 15. ALL HOLES SHALL BE DRILLED OR PUNCHED. BURNING OF HOLES IS STRICTLY PROHIBITED.
- 16 FLOOR PLATE WHERE SHOWN SHALL BE 1/4 INCH CHECKERED STEEL (UNLESS OTHER-WISE NOTED) AND SHALL CONFORM TO ASTM A-36.
- 17. FLOOR PLATE SHALL BE CONNECTED TO SUPPORTING MEMBERS BY WELDING WITH 3/16 INCH WELDS 2" LONG AT 1'-0" CENTERS.
- 18. FLOOR GRATING UNLESS OTHERWISE NOTED, SHALL BE WELDED BAR GRATING WITH 1 1/4" x 3/16" BEARING BARS SPACED AT 1 3/16" C/C AND CROSS BARS SPACED AT 4" C/C. PROVIDE GRATING SUPPORT AS REQUIRED ALONG FACES OF COLUMNS STAIR TREADS SHALL BE STANDARD GRATING WITH NONSKID PLATE NOSING.
- 19. FLOOR OPENINGS OVER 4" DIA SHALL BE BANDED WITH 1/4" PLATE FLUSH WITH BOTTOM OF FLOOR PLATE OR GRATING AND PROJECTING 4" ABOVE THE WALKING SURFACE, UNLESS OTHERWISE NOTED (WELD EVERY THIRD BEARING BAR)
- 20 ERECTION CONTRACTOR SHALL BE RESPONSIBLE FOR GROUTING OF STRUCTURAL STEEL AND ADHESIVE ANCHOR INSTALLATION. CONTRACTOR SHALL PROVIDE AND INSTALL ADHESIVE ANCHORS OF THE SIZE AND TYPE SHOWN ON THE PLANS IN ACCORDANCE WITH THE CONCRETE NOTES.
- 21. FABRICATOR SHALL CLEARLY MARK ALL ERECTION DRAWINGS AND ALL STRUCTURAL MEMBERS SHALL BE CLEARLY MARKED IN ACCORDANCE WITH THE ERECTION DRAWINGS. PIECE MARKS SHALL BE WELDED OR TAGGED. TAGS SHALL BE DURABLE, ATTACHED
- 22. ALL ERECTION AND SHOP FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR DESIGN APPROVAL PRIOR TO FABRICATION.
- 23. FOR TYPICAL STAIR AND HANDRAIL DETAILS REFER TO DRAWING 50-320-02
- FOR TYPICAL LADDER DETAILS REFER TO DRAWING 50-320-03. 24. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL STRUCTURAL STEEL SHALL BE GALVANIZED.

GENERAL MASONRY NOTES

- ALL MASONRY SHALL BE 'CONCRETE BLOCK' CONFORMING TO ASTM C-90 N-1 WITH F'M = 1500 PSI COMPRESSIVE STRENGTH. SPECIAL INSPECTION REQUIRED. SUBMIT TEST REPORTS SHOWING CONFORMANCE WITH C-90 N-1 AND
- UNLESS DTHERWISE NOTED ON DRAWINGS, ALL MASDNRY WALLS SHALL BE PLACED IN LENGTHS TO PERMIT MAXIMUM 4'-0 LIFTS AS PER UNIFORM BUILDING CODE. LAY WALLS IN RUNNING BOND PATTERN.
- 3. ALL MORTAR SHALL BE TYPE "S" USING PORTLAND CEMENT AND HYDRATED LIME ONLY, AND MUST CONFORM TO ASTM C270 AND TO THE PROPORTION SPECIFICATIONS OF TABLE 2004,70 OF THE SBC. COMPRESSIVE STRENGTH OF MORTAR TO BE 2000
- GROUT SHALL HAVE AN 8' TO 10' SLUMP USING 3/8' MAX. AGGREGATE. GROUT SHALL CONFORM TO ASTM C476 AND SHALL CONFORM TO THE PROPORTION SPECIFICATIONS OF TABLE 2104.7C OF THE SBC.
- UNLESS (ITHERWISE SPECIFIED ON DRAWINGS, ALL WALLS SHALL BE REINFORCED AS FOLLOWS: (ALL REINFORCED CELLS SHALL BE GROUTED.)

6' VALLS #5 HDRIZ @ 48' D.C. AND #5 VERTICAL @ 48' D.C. 8' VALLS #5 HDRIZ @ 48' D.C. AND #6 VERTICAL @ 48' D.C. 10' VALLS #6 HDRIZ @ 48' D.C. AND #6 VERTICAL @ 32' D.C. 12' VALLS #6 HDRIZ @ 48' D.C. AND #6 VERTICAL @ 24' D.C.

- 6. ALL REINFORCING STEEL SHALL BE NEW STOCK DEFURMED BARS CONFORMING TO ASTM A-615 GRADE 60. LAP ALL MASDINRY REINFORCING 48 BAR DIAMETERS. ALL VERTICAL REINFORCING SHALL BE DOVELED 48 BAR DIAMETERS. (SAME SIZE AND SPACING AS VERTICAL BARS) INTO FOUNDATION VALL OR FOOTING BELOW. HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS AT ALL INTERSECTING
- UNLESS NOTED DIN BRAWINGS, 2 VERTICAL BARS MATCHING WALL BAR SIZE SHALL BE PLACED IN GROUTED CELLS AT CORNERS, AT ENDS OF WALL, AT INTERSECTIONS AND AT JAMBS OF ALL OPENINGS. DOVEL TO FOUNDATION OR SLAB BELOW.
- 8. UNLESS DTHERVISE NOTED, REINFORCE THE HEAD SECTION OF ALL DPENINGS LESS THAN 24" VITH 2 #5 BARS PLACED IN AN 8" DEEP HORIZONTAL BOND BEAM UNIT EXTENDING 16" BEYOND DPENING EACH SIDE. FOR LARGER DPENINGS, SEE PLAN NOTES AND SECTIONS.
- 9. ALL ANCHOR BOLTS MUST BE FULLY EMBEDDED IN GROUTED CELLS OR BOND BEAMS. WALLS AND AT CORNERS.

APPROVED FOR CONSTRUCTION 8-16-02

ISSUE RECORD CURRENT DRAWING REFERENCE DRAWINGS **REVISIONS** ENGR RECORD STATUS BY DATE BY DATE BY CHK APP DRAWING NO DATE ISS REV FOR DATE TITLE TO DESCRIPTION GLT 3-14-02 5-15-02 1 0 CLIENT CONSTRUCTION 5-28-02 GLT DRS GB ADD NOTE 24 TO GENERAL STEEL NOTES 6-04-02 2 1 CLIENT FOR BID 8-16-02 3 1 CLIENT CONSTRUCTION IN FINAL DESIGN TD 5~14-02





Salt Lake City, Utah

INTERMOUNTAIN POWER HELPER COOLING TOWER BASIN CONCRETE AND STEEL GENERAL NOTES

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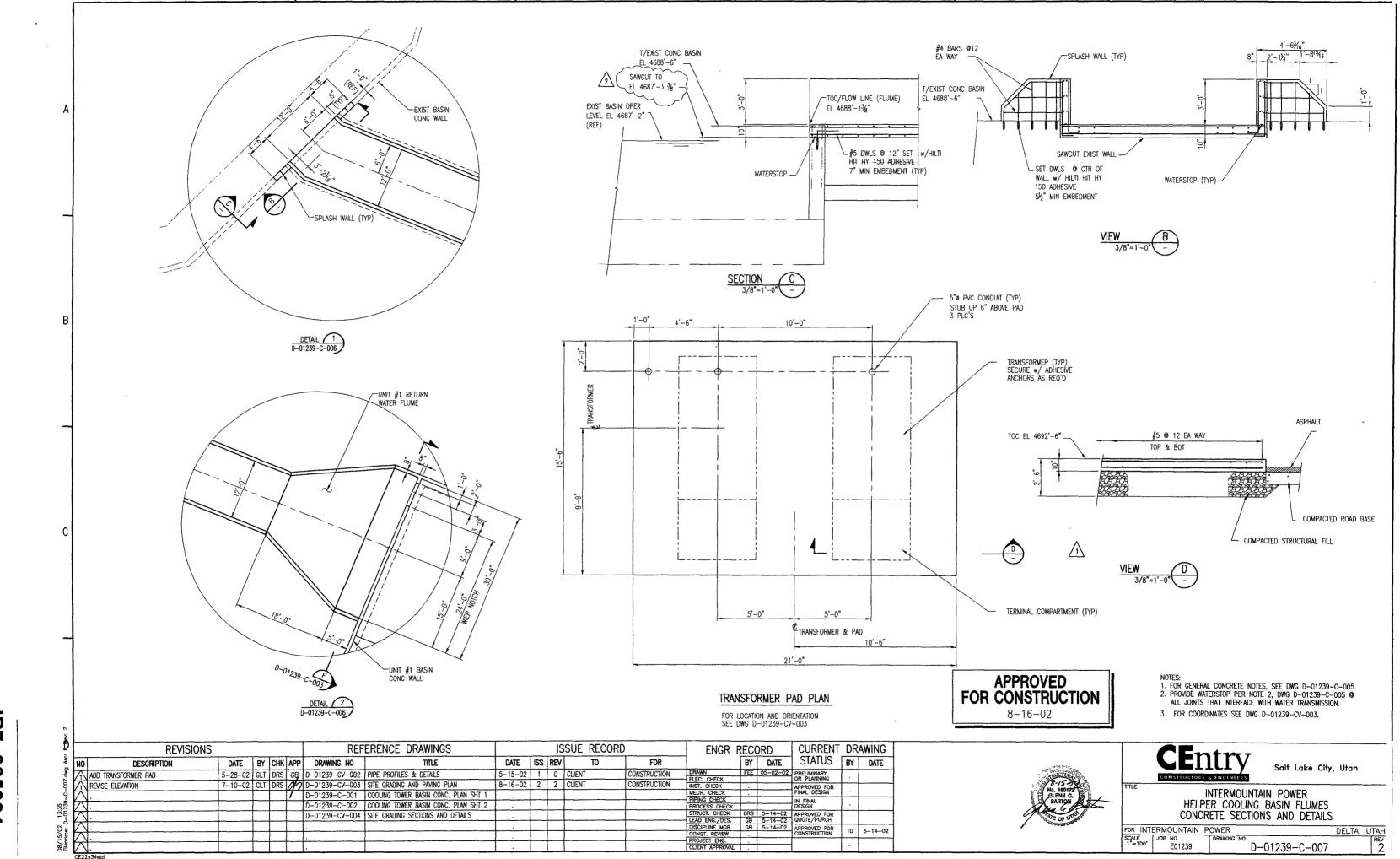
TOP OF FLUME WALL-

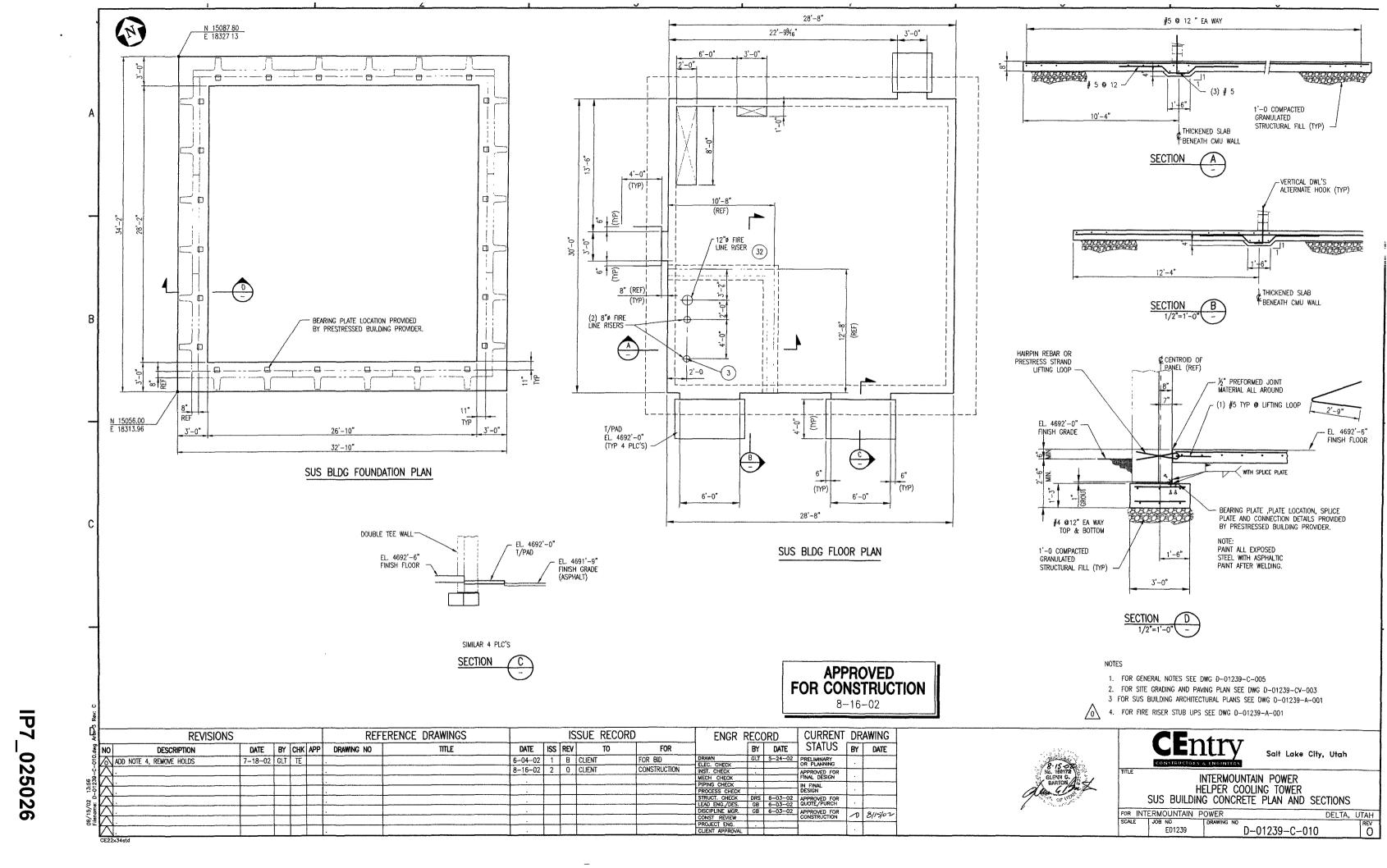
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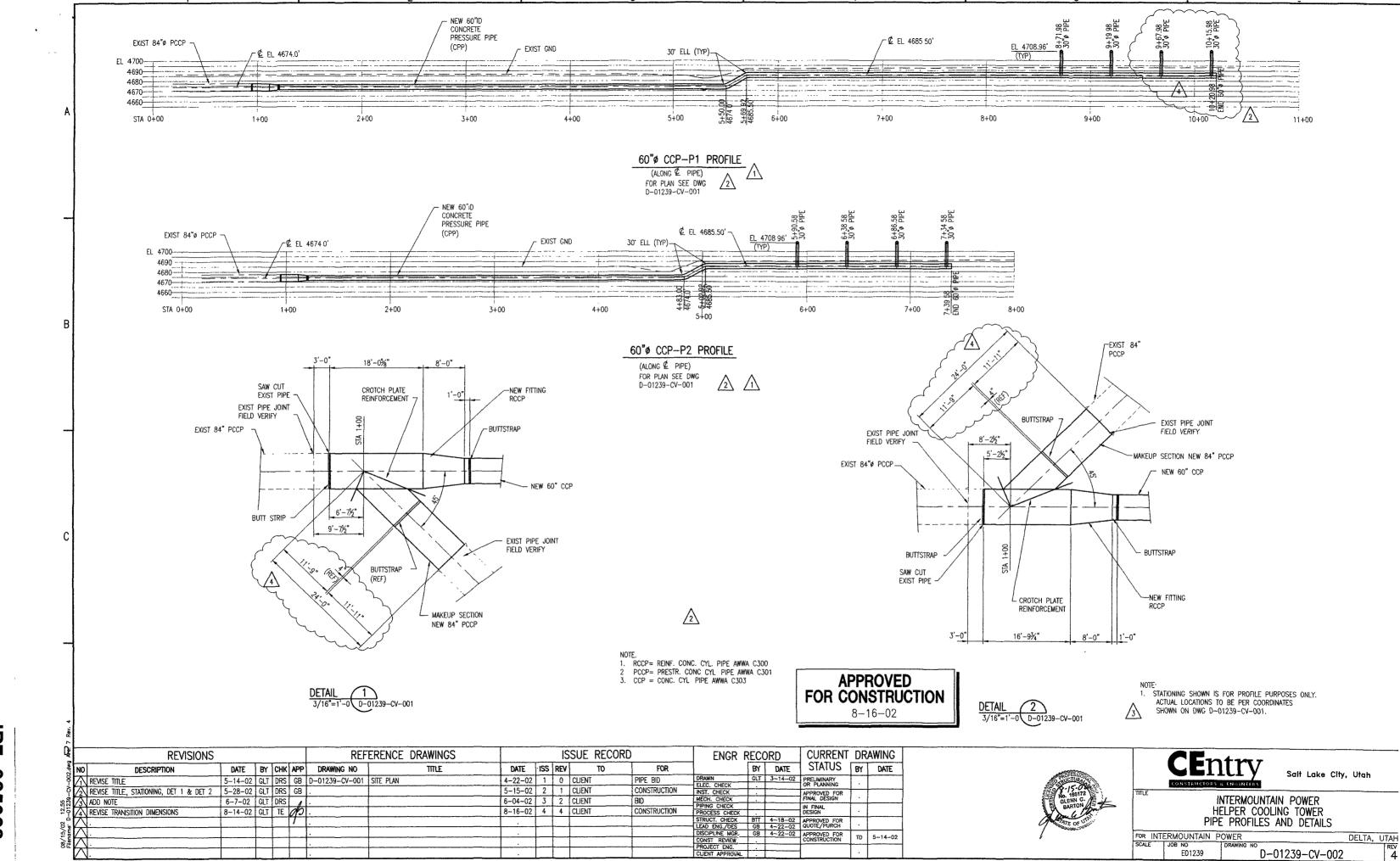
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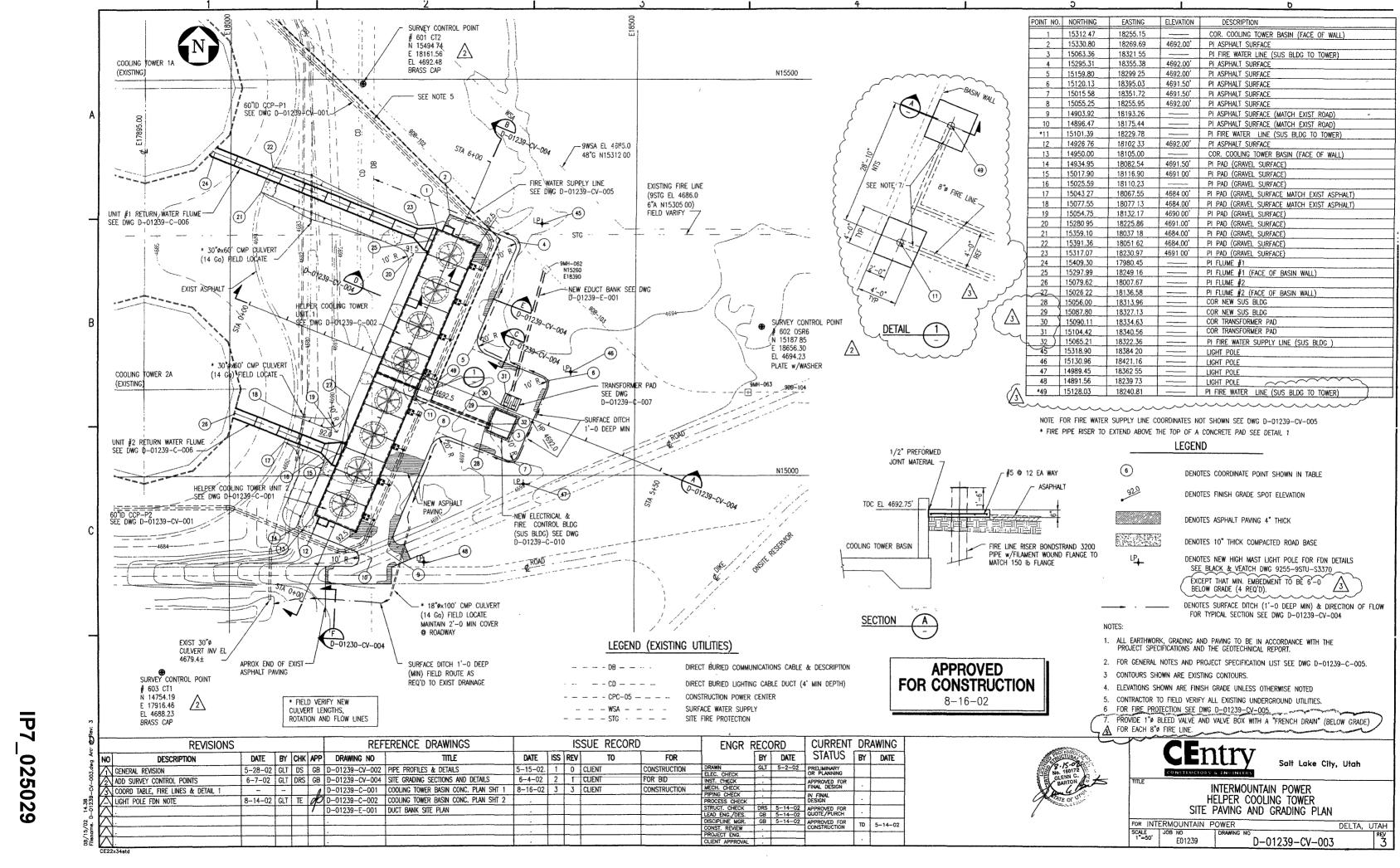


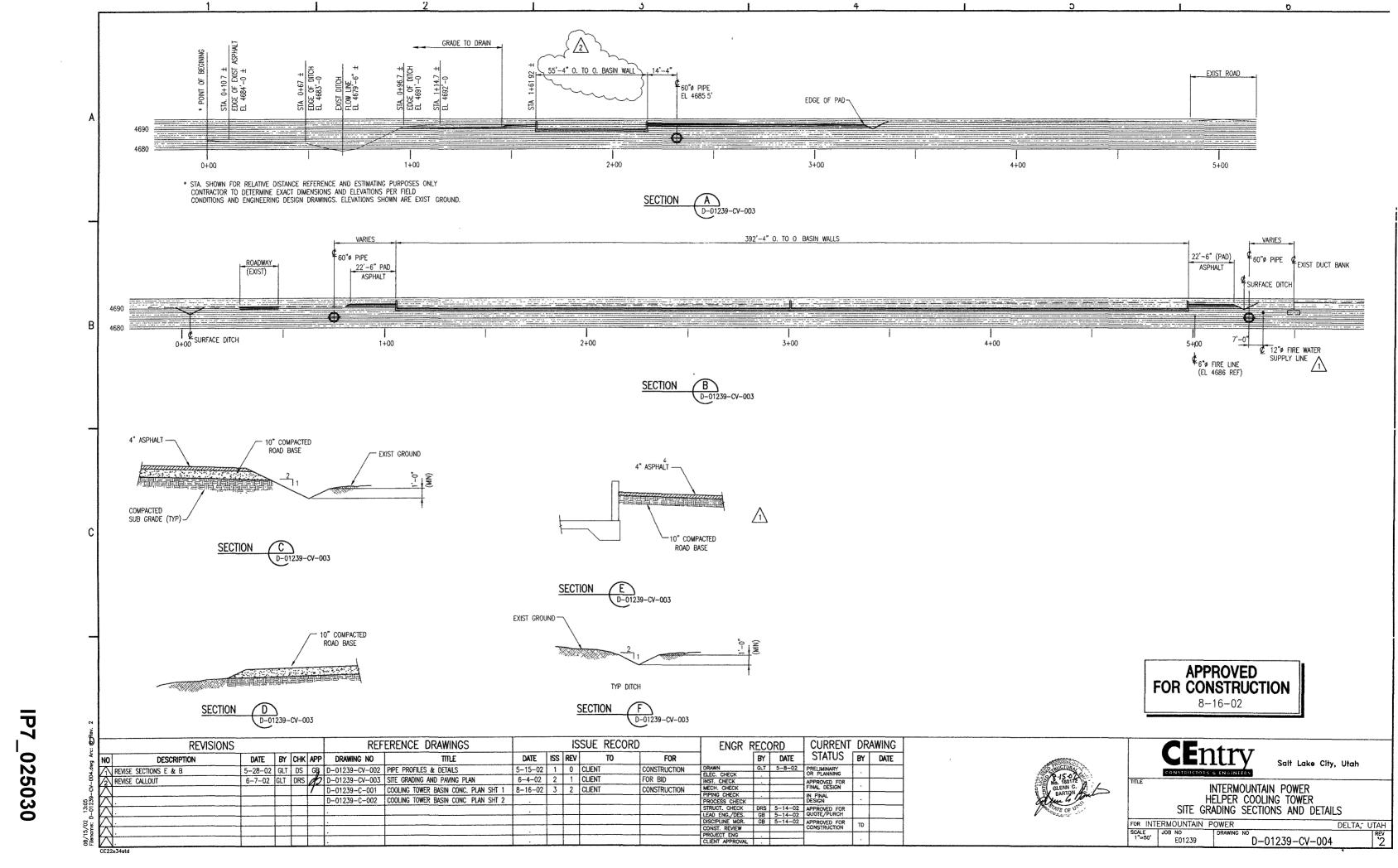


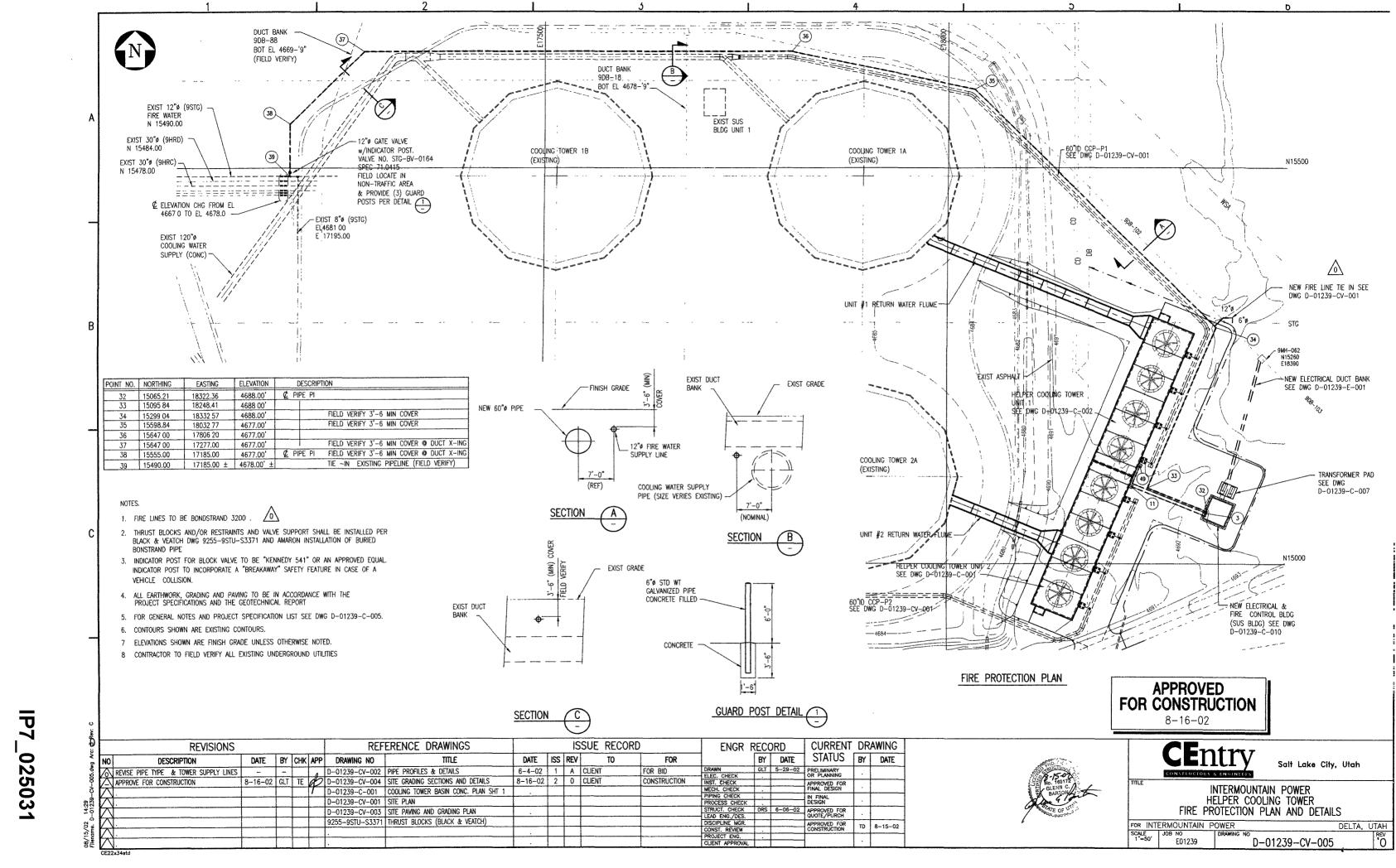
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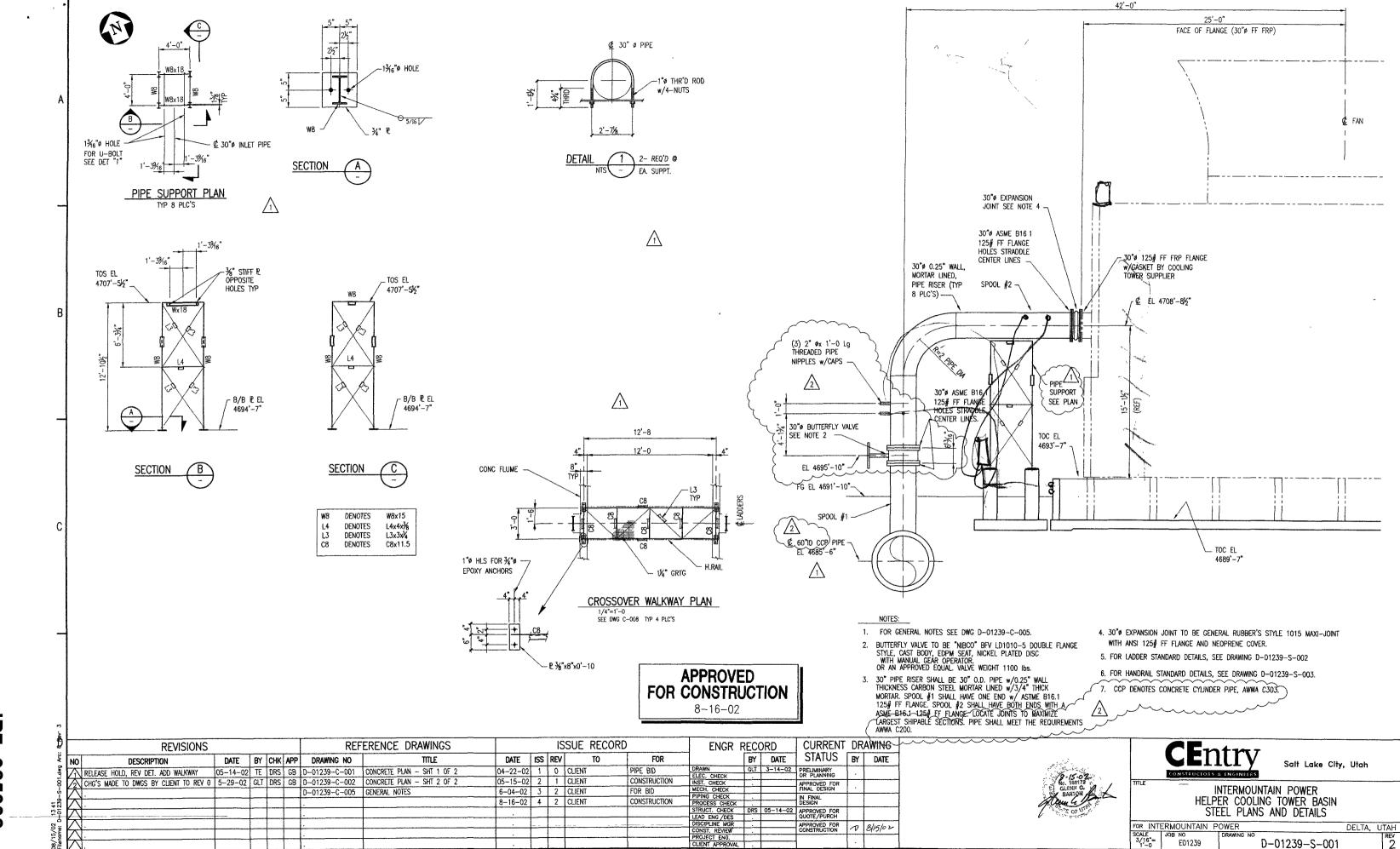
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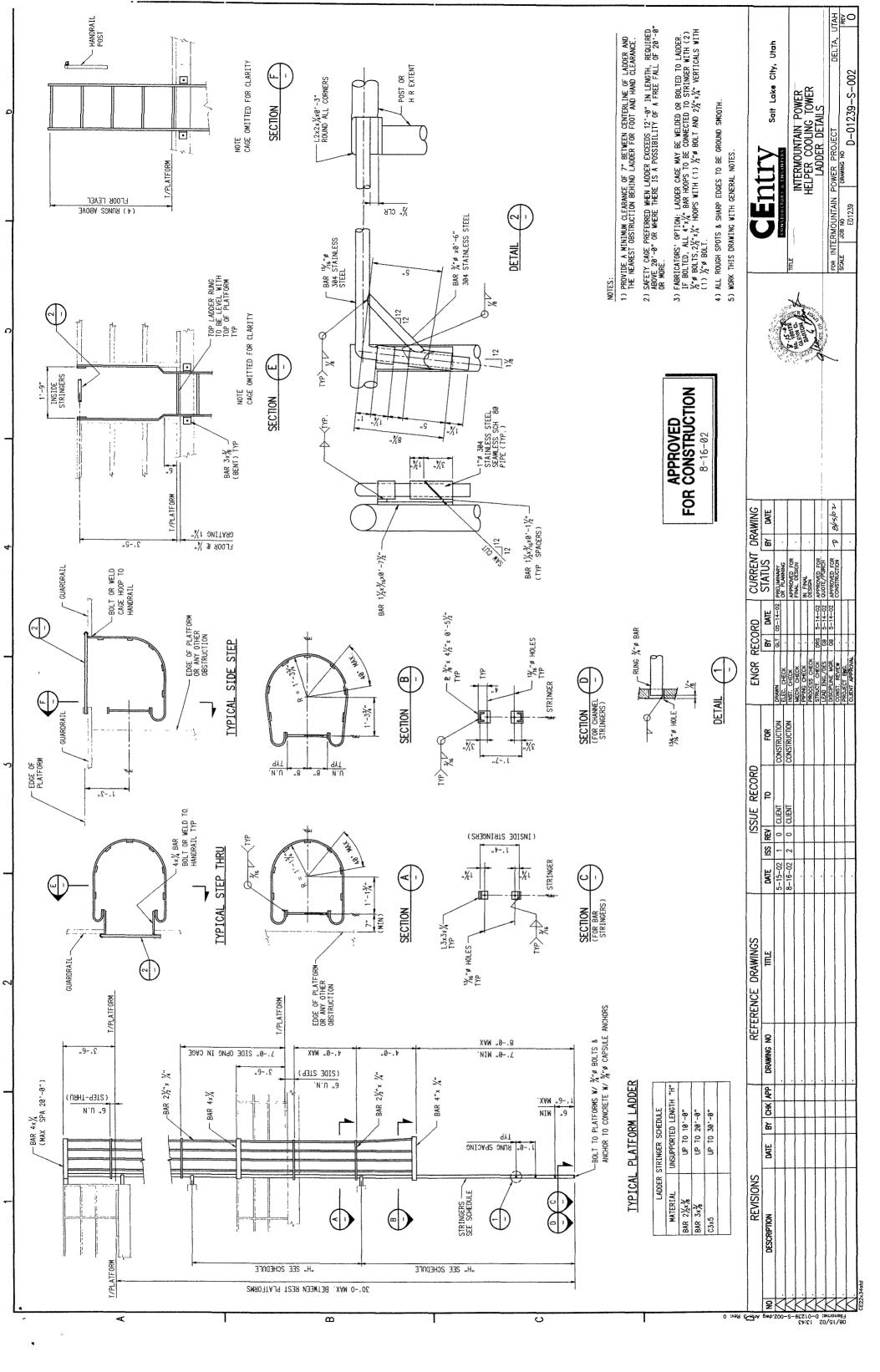


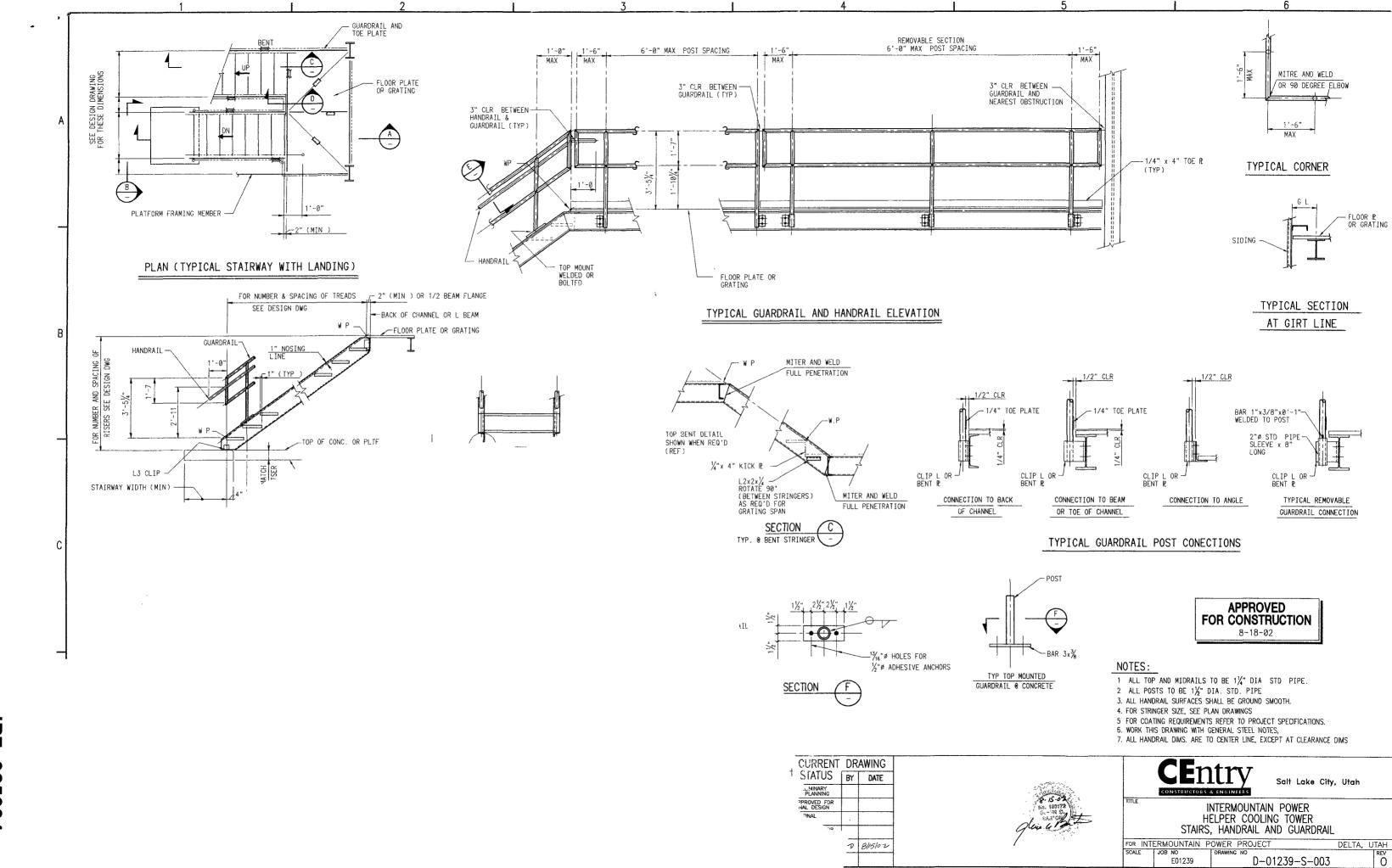












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